UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

OCT 31 2018

Landon Miller
Aemerge RedPak Services Southern California, LLC
9600 E. Avenue
Hesperia, California 92345

Re: Request for Reconsideration of Applicability Determination Issued to Aemerge RedPak Services Southern California, LLC

Dear Mr. Miller,

This letter is in response to your January 8, 2018, request for reconsideration of the applicability determination referenced above. Aemerge RedPak Services Southern California, LLC (Aemerge RedPak) has constructed a system in Hesperia, CA for the destruction of hospital, medical, and infectious waste. After review of the supplemental material you provided to EPA after the April 7, 2017, applicability determination letter, EPA has determined that the exemption at 40 C.F.R. §60.51c in 40 CFR Part 60, Subpart Ec (HMIWI standards) for "any pyrolysis unit" applies to the Aemerge RedPak system. If operated as described, the system is not subject to the HMIWI standards. This determination supersedes the April 7, 2017, determination.

In your initial letter of February 22, 2016, requesting an applicability determination of the HMIWI standards, you provided the following information about the unit.

1. The Aemerge system consists of three components:
    a. Carbonizer
    b. Thermal Oxidizer
    c. Heat recovery steam generator
2. The first component within the system, the carbonizer unit, is described as an inert gas "carbonization" process.
3. The carbonizer unit designed to process 5,800 pounds per hour of medical waste (subsequent responses to the EPA indicated that the capability of the unit is up to 7,750 pounds per hour).
4. The process taking place in the carbonizer unit is endothermic.
5. The waste processed in the carbonizer unit is contained in a sealed chamber (muffle) that receives indirect heat from an outer jacket that can be heated with natural gas or electric heat. The outer jacket is completely isolated from the inner muffle.
6. The carbonizer unit uses nitrogen to blanket the waste material as it travels down the muffle by way of the drag chain. The nitrogen blanket and negative pressure in the muffle

are designed to eliminate combustion and combine with high pyrolytic heat from the outer jacket to drive off volatiles from the waste in the carbonizer unit.

7. The intent of the design of the carbonizer unit is to produce a high-quality carbon with minimal ash. Example products are carbon that can be used as pigment for black coloration and char that can be charged with nutrient for landscape application.
8. The carbonizer unit will also generate a synthetic gas (syngas), the composition of which will be largely methane.
9. The syngas then will be combusted in the thermal oxidizer.
10. The resultant heat from the thermal oxidizer is used in the heat recovery steam generator (HRSG).

Since sending us your January 8, 2018, redetermination request, you have reconfirmed the description above, as well as provided EPA with additional information including a detailed description of the design and operation of the carbonizer unit and its chambers, a temperature profile of the process, and an analysis of the syngas. This additional information was provided in a meeting on June 19, 2018, and subsequent email submittals on October 10, 2018, and October 18, 2018.

According to 40 C.F.R. §60.50c(f), "[a]ny pyrolysis unit (defined in §60.51c) is not subject to" the HMIWI standards. In the definitions in §60.51c, "pyrolysis" is defined as "the endothermic gasification of hospital waste and/or medical/infectious waste using external energy." Aemerge RedPak correctly notes in the January 8, 2018, letter that, notwithstanding 40 C.F.R. §60.50c(f), the term "pyrolysis unit" is not defined at §60.51c; however, the exemption for pyrolysis units was an outgrowth of the 1996 re-proposal of the HMIWI standards (61 FR 31736). In that proposal, EPA stated that "it is inclined to adopt separate regulations for pyrolysis treatment technologies" (61 FR 3753), and to that end prepared a draft regulation for pyrolysis treatment technologies and made it available for comment in the docket to the 1996 re-proposal. (See Legacy Air Docket, A-91-61, IV-B-56). In the draft pyrolysis regulation, EPA defined "medical waste pyrolysis" (MWP) as the endothermic gasification of medical waste using external energy. EPA further defined "primary chamber" to mean the heated portion of the MWP [unit] into which waste is introduced and the "secondary chamber" to mean the portion of the MWP [unit] where final oxidation of pyrolysis gas occurs. We therefore believe that requests for the exemption for "any pyrolysis unit" at 40 C.F.R. §60.50c(f) should be evaluated by considering a combination of an endothermic pyrolysis primary chamber and a thermal oxidizer secondary chamber.

The materials provided to EPA through October 18, 2018, establish that the pyrolysis component of the unit is both designed for and accomplishes endothermic gasification of waste without combustion. The pyrolysis component heats the muffle with exhaust gases from natural gas-fired burners. The unit is set to a sub-stoichiometric (air lean) air to fuel ratio to ensure that excess air is not introduced into the chamber. The system is continuously monitored to ensure that oxygen levels do not exceed 3%. If oxygen levels do rise above 3%, the system will alarm, material will stop being introduced into the carbonizer, and the carbonizer isolation gate valve will shut to prevent oxygen introduction into the carbonizer. By design, the system does not operate under

conditions capable of combustion, and the temperature profile provided by Aemerge RedPak does not show an overall exothermic reaction (indicating combustion) upon introduction of waste into the muffle furnace. For these reasons, we agree that the Aemerge RedPak system (consisting of the carbonizer and thermal oxidizer), in Hesperia, California is not subject to 40 C.F.R. part 60, subpart Ec.

In your letter, you also raise the issue of contained gas. Because the unit is not a HMIWI, it is not necessary to address contained gas for the purposes of determining applicability to the HMIWI standards. Regarding potential applicability to 40 C.F.R. part 60, subpart CCCC (because the exemption to that rule at §60.2020(d) would not apply if the unit is not subject to subpart Ec), we note that subpart CCCC applies to the combustion of waste gases that are in a container when combusted (see §60.2265). Since the syngas resulting from the carbonizer will not be in a container when combusted in the thermal oxidizer, subpart CCCC will not apply to the thermal oxidizer.

This determination is based on the information provided by Aemerge RedPak to the EPA and was coordinated with the EPA's Office of Enforcement and Compliance Assurance, the Office of General Counsel, and the Office of Air Quality Planning and Standards. If you have any questions concerning the determination provided in this letter, please contact Nathan Dancher of my staff at (415) 972-3482.

Sincerely,

Oct. 31, 2018

Joel Jones
Assistant Director, Enforcement Division
U.S. Environmental Protection Agency
Region 9